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THE EXCAVATING ENGINEER PUBLISHING COMPANY

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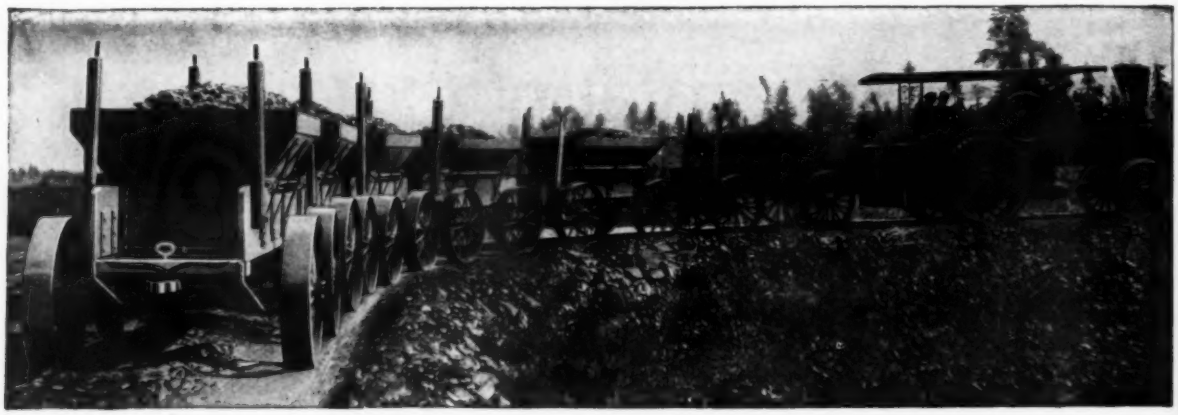

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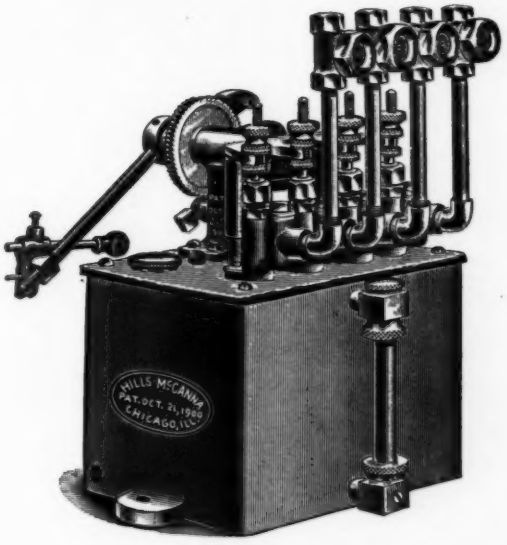

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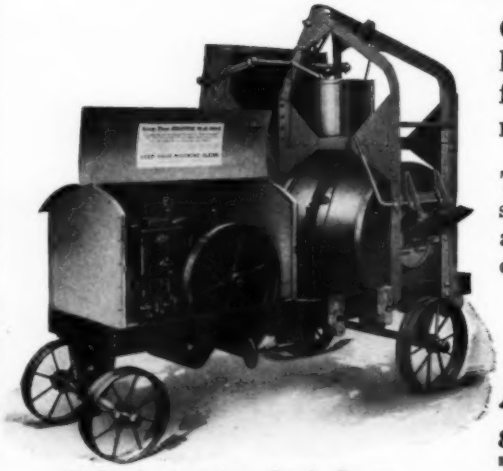

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A Hard Part

of the work at Panama Canal has been the dredging of the Culebra Cut. The picture shows a detail of this; the raising of a boulder weighing 50 tons. The dredge is equipped with **Roebling's Blue Center Rope.**

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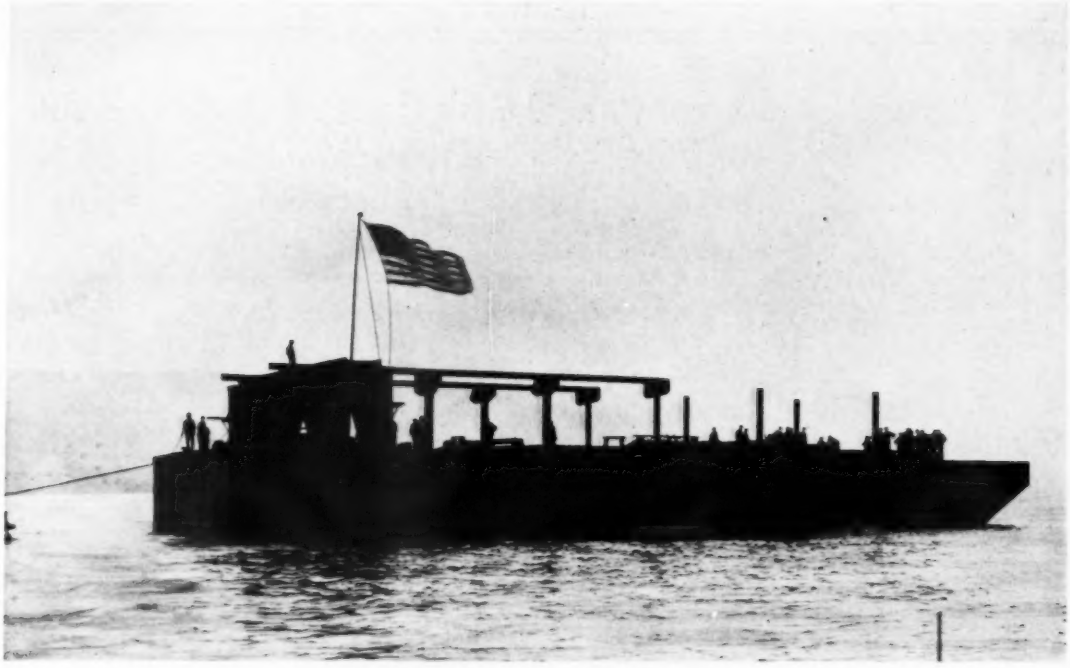

Launching the "Gamboa" at Newburg, N. Y.

Bound for Colon
Towing the "Gamboa" out of New York Harbor

671.86
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The Excavating Engineer

Vol. 11 NOVEMBER, 1914 No. 2

The Most Powerful Dipper Dredges in the World

How the 15-yard Bucyrus dipper dredges "Gamboa" and "Paraiso" are fighting the Curcaracha slide on the Panama Canal—Severe digging conditions encountered—Description of the dredges.

THE illustrations published with this article give a far better idea of the size and power of the two dipper dredges which are now tearing away at Curcaracha slide than written word can do. Suffice it to say that they exceed in both size and power any other dredge of the same type that has ever dug.

Both dredges were partially erected on the Hudson River at Newburg, N. Y., and towed to Staten Island, where the erection was completed and preliminary tests made. The booms, dipper handles and dippers were taken down and shipped to the Isthmus, while the dredges with water-tight sea hatches and bulkheads were towed to Colon. The "Gamboa" arrived in Colon harbor on March 15th after a very rough trip, the "Paraiso" on May 25th. The "Gamboa" was digging at the base of Hagan's slide in Culebra cut on April 3rd. The "Paraiso" was excavating rock near the south side of Gold Hill on Curcaracha slide on June 6th.

When it is realized that each dredge has a displacement of about 1500 tons, that the boom with its machinery weighs about 113,000 pounds and the dipper handle 81,000 pounds, the work of erection does not seem simple. The "Gamboa", as has been stated, arrived at Colon March 15th, was towed to Paraiso, arriving March 18th, and on April 3rd, sixteen days later, was digging.

Assembling at Paraiso

The progress of the erection of the "Gamboa" was typical of both dredges. On the 19th the spuds were lifted off her decks, where they had been stowed for shipment, with one 75-ton and one 100-ton Bucyrus wrecking crane. The rest of the week was taken up in removing the sea bulkheads and hatches which were required for towing. On the 23rd the port spud was shipped with the help of the Bucyrus cranes. The next day the starboard spud was set in place and the day following, the stern spud. The 26th the boom was erected with the two cranes and a 50-ton floating derrick. The next day the dipper sticks and dipper were put in place. The rest of the time was consumed with assembling the lighter parts, with rigging the dredge and adjusting the machinery.

The Digging Conditions

Ever since the dredges started work they have been in the heaviest kind of digging consisting of an outcropping dike of trap. This is an unusually hard, metallic rock similar to the dike across the Pedro Miguel lock site, which caused so much difficulty for the drills and shovels. The rock found at Curcaracha is similar in character to that found in the Palisades on the Hudson. The Hagan's slide rock is greenish in color, and has an extremely hard set under water, but disintegrates rapidly when exposed to the air.

An idea of the difficulty of this digging can be gained from the fact that during the 30-day test of the "Paraiso" a day did not pass that the dredge did not pick up from a half to two dozen boulders weighing from 10 to 30 tons apiece, of such a size indeed that they had to be blasted on the dipper before being placed on the scows. The largest encountered so far, weighed, according to the engineers, about 50 tons. This is shown in one of our photographs. An indication of the power of the dredge may be gained from the knowledge that the operator of the dredge actually did not know he had this boulder until it appeared above the water.

The method of handling these boulders is interesting. Instead of drilling and shooting them, as is the usual custom on contracting jobs, the Panama engineers mud-cap them on the dipper. In the former instance an hour to an hour and a half is consumed, in the latter a space of about three minutes. As a general rule long boulders, with dimensions of about 12 feet in length by 15 to 20

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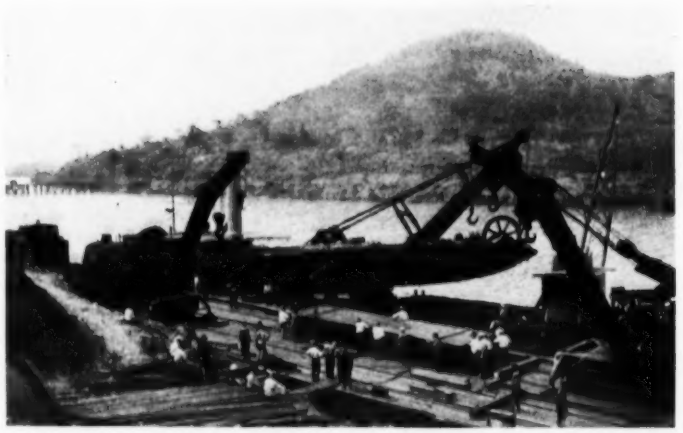
Lifting the dipper handles

Swinging a spud

Setting the boom in place

The boom being stepped in the circle



Two Bucyrus wrecking cranes swinging the boom

Assembling the Dredges on the Canal

feet in circumference are thrown back in the water and an attempt made to catch them endwise in the dipper so that they may pass through when the dipper is tripped. This also offers a chance that it may be broken in two by the dipper. If this method fails, the boulder is laid across the dipper and mud-capped. As a rule, a charge of from two to four pounds of dynamite is used, and as high as six pounds as a maximum. Round and egg-shaped boulders which are too big to pass through the dipper are mud-capped. As a general rule, where mud-capping is necessary, the boulder is lowered a few feet below the surface of the water so as to prevent the flying of rock. The dipper door is kept open when this operation is going on.

Until the slide of October 14th, the two dipper dredges were mainly relied upon to clear away the troublesome Curcaracha slide. In fact they were the only two dredges digging steadily in Culebra cut. The vital importance of opening up the canal to navigation has made it necessary to push them to the limit, speed and time economy are the pass words. Indeed, every time the dipper is pulled through, the full power of the engines is required. No other dredge now on the canal can begin to do the work that they are doing.

The severity of the digging conditions can hardly be over-estimated. This naturally has kept down the output that it would be possible to make under average conditions. Since they started digging, both have been part of the time in unblasted rock and part following the drill boats. As the blasting is done, however, the rock, is, as a rule, broken up in such enormous pieces, that it practically results in digging solid rock.

When they first started digging, both dredges were put through a 30-day test, under the supervision of the Bucyrus Company's representatives. For the first few days the machinery was worked slowly in order to feel it out carefully under all combinations of strains. From 90 to 120 seconds per cycle was the speed set. Within a week the dredges were speeded up gradually until they were turned over to the Dredging Division, when 45 seconds per cycle was attained and set as normal. This was in 40 to 50 feet of digging.

The output of the dredges has likewise been gradually increasing. The average of 3,000 to 5,000 cubic yards per day of 16 hours has been increased, until now from 9,000 to 10,000 cubic yards has been attained, and about 125,000 cubic yards per month. This is in the hardest kind of rock digging. Both dredges have used their 10-yard rock dippers.

The spoil is being handled in the new 1,000 cubic-yard steel barges, and is being dumped in the shallows of Gatun Lake, south of the site of the former village of Gorgona. The haul is about 5 to 6 miles one way. In order not to be delayed by traffic the dredges up to the time of the recent slide have been working two 8-hour night shifts, from 4 P. M. to 8 A. M.

Both dredges will be pushed to the utmost, fighting Curcaracha slide until this eventually is conquered. They will then have an opportunity to show how much they can dig. It is safe to say that without these two machines, the opening of the Canal would have been delayed several months.

Colonel Goethals has said that he is thoroughly satisfied with them and that they have far exceeded his expectations.

The Design of the Dredges

Although the general design of these dredges follows very closely the later high-powered Bucyrus dredges, such as the "Toledo" owned by Geo. H. Breymann & Brothers, they mark a distinct advance in high-powered dredge construction.

The dredges are duplicates, except in a few minor details. Both are equipped with 15-cubic yard dippers with extra rock dippers of 10-cubic yards capacity each, for use in digging exceptionally hard material. The dippers are hung on a 3¼ inch single part wire rope hoisting cable in accordance with the latest practice. The dredges are designed to dig to a depth of 50 feet below the surface of the water.

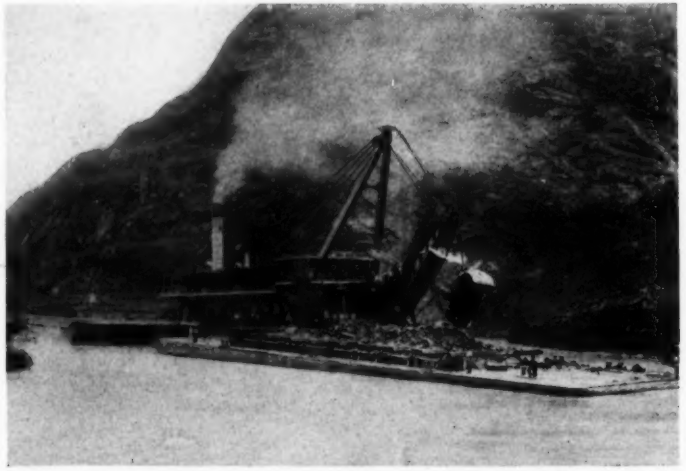
One of the unusual features of the design is the steel hull, the heavy construction of which is required to support the unusually heavy machinery described herein. It is distinctive particularly for the system of steel stiffening trusses and for the very elaborate equipment of the deck fittings scow moving winches, etc., and for the water-tight bulk-heads, water-tight spud sponsons and other features not called for in a dipper dredge built for commercial purposes.

The main hoisting machinery consists of horizontal, twin tandem, compound, condensing engines having cylinders 16 inch and 28 inch in diameter by 24 inch stroke. The engines are compound geared to heavy spur gears about 12 feet in diameter. These gears are mounted on either end of a 16 inch main hoisting shaft which carries the drum. The drum is cast steel of the differential type and is grooved to carry the 3¼ inch wire rope. This type of drum is characteristic of high-powered Bucyrus dredges. The shape permits the maximum digging force and the slowest speed at the time when the dipper is digging and the angle between the hoisting rope and the dipper handle is the sharpest. As the dipper is hoisted the rope winds on to the large diameter of the drum, which of course increases the speed when this is most desirable, and when the maximum bail pull is not required.

An independent 12″x16″ double engine of the link reverse type drives the swinging machinery. The independent double cylinder backing engine is

The "Gamboa" with her 10-yard rock dipper

The "Gamboa" waiting for a blast



The "Paraiso" lifting a 20-ton boulder under Curcaracha slide

The "Paraiso" digging trap rock

The Dredges in Action

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geared through friction clutches to a cylindrical backing drum.

The spud machinery is a complete departure from other designs. On the larger preceding dipper dredges, including the "Toledo," the spuds are driven through 2-part hoists and the drums operated by jaw clutches. On the new dredges the spuds are operated by 4-part hoists. This design has been adopted because of the enormous spud reaction which is occasioned when digging over the side of the dredge.

The stern spud machinery has also been considerably changed from other designs. Instead of operating this spud, which is of the trailing type, by means of a wire rope attached to the foot, as has been the common though not the invariable practice in the past, it is hoisted and lowered by a rack and pinion drive.

The forward spuds are of exceptionally heavy construction, 48 inches square and 72 feet long.

The boom is 62 feet long of the solid plate girder type. Complete with the machinery it weighs about 113,000 pounds.

The dipper handle is 72 feet in length and weighs 81,000 pounds.

Two 3-drum winches are supplied for moving scows. These are placed on the main deck, one on each side of the house, as may be seen from the general views of the dredge. They are operated by 6″x6″ horizontal engines placed inside the house.

An unusually complete steam plant is furnished. This consists of two Scotch Marine boilers, each supplied with two Morison suspension furnaces, a condenser with an air pump and a centrifugal circulating pump driven by an independent engine is included as well as a closed feed water heater, feed pumps, two fresh water tanks and a complete electric lighting plant. As the dredges are designed to burn either coal or oil they are equipped with two large oil storage tanks, as well as coal bunkers.

These dredges are designed particularly with a view of convenience and economy in operation and rapidity of action, and with the steam control applied to all clutches, they are as easily handled as dredges of much smaller capacity.

The dredges were installed under the supervision of the Bucyrus Company's representatives, Thomas Jardine and William Welch. W. C. Comber is resident engineer and James McFarlan, superintendent of dredging. Bernard Swain is captain of the "Gamboa" and Robert Tweedlie chief engineer. W. J. Landers is captain and W. Pettiletti chief engineer of the "Paraiso." Both crews are old hands on the Canal, having been on the job since work started. It is safe to say that few have had as thorough schooling under as rigorous conditions.

The First Steam Shovel in Honduras

Louis Augustine sends us the photograph which we publish herewith, of the first steam shovel that has ever dug in the Republic of Honduras.

Mr. Augustine assembled the shovel which is a Vulcan 45-ton, at Omoa, Spanish Honduras, and is now operating it for the Cuyamel Fruit Company, near this place. The machine is being used for eliminating curves and reducing grades.

A bailiff went out to levy on the contents of a house. The inventory began in the attic and ended in the cellar. When the dining room was reached, the tally ran like this:

"One dining room table, oak.
"One set chairs (six), oak.
"One sideboard, oak.
"Two bottles whiskey, full."

Then the word "full" was striken out and replaced by "empty" and the inventory went on in a hand that straggled and lurched diagonally across the page until it closed with:

"One revolving doormat."—*Exchange.*

The Welland Ship Canal—I.

By John G. Beck

The Welland Ship Canal now under construction is one of the greatest engineering undertaking now under way. The various methods of construction will be followed closely by all interested in excavation. This is the first of series of articles on the canal and the method of its construction written by an engineer who lives on the work, and who consequently is in close touch with the construction as it proceeds.

THE idea of joining Lake Erie and Lake Ontario originated in the mind of the Honorable William Hamilton Merritt, M. P., after whom the present city of Merritton was named.

The Welland Canal Company was incorporated in 1824, with a capital of $200,000.00, divided into shares of $50.00 each. Construction work began on the old Welland Canal the following year and continued until the opening of the Canal in 1829. The first boats through the "deep cut" were the schooners "Ann and Jane" and the "R. H. Boughton". The pioneer navigators were welcomed by the American villagers of the Buffalo with salute of artillery and entertained at dinner at the Old Eagle Tavern.

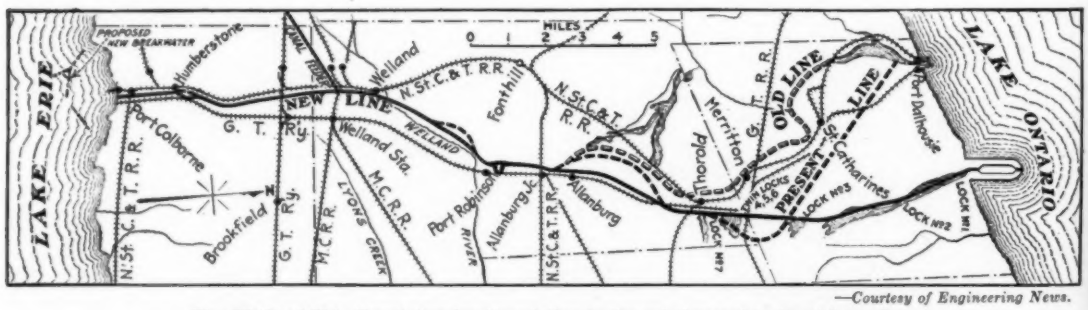
It appears that the original builders did not realize the latent possibilities of inland water-way traffic between the two great lakes, Erie and Ontario. The growth in traffic led to an enlargement of the locks in 1841, a deepening and widening of the canal in 1860 and a further and more extensive enlargement in 1874, which work was culminated in 1882. This new Welland Canal, the present water-way, extends from Port Colborne, the Lake Erie entrance, to Port Dalhousie, the Lake Ontario opening, has twenty-seven locks, two railroad bridges and twelve highway bridges, most all of which are lighted and operated by electricity. It was built at a cost of approximately $35,000,000.00.

Our map illustrates its route.

The continued and unprecedented growth of traffic has recently forced the Dominion Government to enlarge the canal still further. As a result, the Welland Ship Canal is now under construction.

With a preliminary appropriation of $2,000,000.00 excavation started in the Fall of 1913, and, but for the present European disturbance, would be completed in 1918, at a cost of more than $50,000,000.00. As stated above, the course of the canal is shown on our map. In general, however, it joins the eastern end of Lake Erie to the western end of Lake Ontario. It will have a capacity of taking boats of 800 feet in length, whereas the present canal, which is kept in operation during the construction of the new one, can accommodate vessels of but 360 feet in length. The first canal is still used for small vessels and for power purposes. The general dimensions of the new canal are as follows:

Length from shore line, Lake Erie to Ontario	25 miles
Difference in elevation Lake Erie & Ontario	325½ ft.
Bottom width	200 feet
Width at water line	310 feet
Depth of canal	25 feet
Depth of lock sills, low water	30 feet
Number of locks	7
Usable length of locks	800 feet
Usable width of locks	80 feet
Height of lock walls above metre sills	82 feet
Lift of each lock	46.5 feet
Guard Lock at Port Colborne, usable length	900 feet
Usable width	80 feet



—Courtesy of Engineering News.

The Welland Ship Canal showing its relation to the existing and to the old canals
It may be observed that from Port Colborne to Allenburg the new canal practically follows the old

Port Weller Harbor, the New Lake Ontario Entrance of the Canal

A channel is being dredged from the outer entrance piers 1½ miles from shore to lock No. 1. A shore line 500 feet in width is being built from the shore to the piers on both sides. The material used is excavated between the lake and Thorold. A double track Government railroad has been constructed for this purpose.

The construction of the canal is being done by contract and for this purpose the canal has been divided into ten sections, five of which have been awarded to the following contracting companies:

Section No. 1, Dominion Dredging Co., Ltd., of Quebec, Que.

Section No. 2, Baldry, Yerburgh & Hutchinson, Ltd., of London, Eng.

Section No. 3, Confederation Construction Co., Ltd., of Montreal, Que.

Section No. 4A, Maguire & Cameron, of St. Catharines, Ont.

Section No. 5, Canadian Dredging Co., Ltd., of Midland, Ont.

The general route of the Welland Ship Canal, as our map shows, follows the course of the present canal from Port Colborne to Allanburg, half way across the peninsula. From there a new channel will be made to the Lake Ontario opening at Port Weller, which is three miles farther east on Lake Ontario than Port Dalhousie, at the mouth of the Ten-Mile Creek.

Major John Laing Weller, civil engineer of the Department of Railways and Canals in Canada, is chief engineer, being in charge of the survey, design and construction of the new waterway.

Major Weller is a true Canadian and has had an unusually wide experience in engineering. He was assistant engineer on the Trent, Murray and St. Lawrence Canals, superintending engineer on the new Welland Canal and is now the Canadian Goethals of the Welland Ship Canal. He received his military training in the Kinston Royal Military College and his advanced education in the Cobourg Collegiate Institute. He saw actual service in the north western rebellion in 1885, where he received rapid promotion from the rank of lieutenant to that of senior major.

The excavation problems have called for the use of a very large amount of excavating machinery of the most modern type. The various methods of operation are most interesting and will be dealt with as work progresses in further chapters of this article.

(To be continued.)

Grading the Site for the Taylor-Wharton Iron & Steel Company's New Plant

The accompanying photograph shows M. Irving Demarest's 18-B Bucyrus revolving shovel engaged in grading the site for the Taylor-Wharton Iron & Steel Company's new plant at Easton, Pennsylvania. The shovel has been loading from 600 to 700 1½ yard cars per day. 72 cars per hour have often been loaded. The material encountered is clay, loose rock and ledge rock, extremely difficult to handle because of the rock bottom. The average haul is about 200 yards.

The shovel is operated by William J. Schroeder. It is equipped with a ⅞ yard dipper.

J. T. McCarthy's 70-C and 60-C Bucyrus Shovels in Action on the Georgia, Florida & Alabama Ry., near Monroeville Alabama

Steam Shovel Work on the Georgia, Florida & Alabama Ry., Alabama

Detailed figures of output and cost of operation of 70-C and 60-C Bucyrus shovels on J. T. McCarthy & Company's contract on the Georgia, Florida & Alabama Ry. near Monroeville, Alabama.

THE Georgia, Florida and Alabama Railway have under construction fifty miles of new line from Broughton to Pine Hill, Alabama, where connection is made with the Southern Railway.

The work, which is particularly heavy, is being handled by J. T. McCarthy & Company of Gainsville, Florida. It consists of large heavy cuts and fills. The cuts containing from 90,000 to 100,000 cubic yards each, the total excavation amounting to about 1,500,000 cubic yards.

Work began in December 1913 and will probably be finished about March 1915.

The heavy excavation has brought about some interesting shovel work. The equipment, which is practically all new, consists of two Bucyrus shovels, a 60-C and a 70-C, four 15-ton locomotives and thirty-nine 4-yard cars.

Work was started by the 60-C in December 1913 and the 70-C was cut in early in March of this year.

According to Jas. T. McCarthy, the 60-C has been "producing highly satisfactory results." Through his good offices we are able to present below a statement giving the details of its run on January 29th, 1914, which may be considered a good showing for a shovel of this weight.

The machine on this day was digging clay that worked well.

Shovel	60-C Bucyrus, 2½ yard dipper.
Haul	1250 feet.
Locomotives	Two 15-ton saddle tank.
Cars	Nineteen 4-yard Westerns.
Total time worked	10 hours 30 minutes.
Cars loaded	561, 4-yard cars or 2244 cubic yards.
Total loading cost	$20.45
Transportation and Dump	21.90
Incidental	15.00
Coal	9.00
Oil and Waste	1.00
Superintendence and Overhead	8.50
Total Cost	$75.85
Total cost per yard	3⅓ cts.

This cost may be further sub-divided as follows:

Loading	One runner	$ 5.55
	One cranesman	3.90
	One fireman	2.00
	Six pitmen	9.00
	Total	$20.45
Loading cost per cubic yard		9/10 cts.
Transportation and Dump	Two dinkeymen	$ 6.00
	Two brakemen	3.00
	Six dumpmen	9.00
	Dump foreman	3.90
	Total	$21.90
Incidental	One pipeman	$ 2.00
	Two watchmen	3.00
	Three on falsework	5.50
	Picking up tracks	4.50
	Total	$15.00

It may be noted that no record has been given of shovel delays, which we assume were negligable.

A Council of War
Dan Downey to left and J. T. McCarthy to right

The 70-C Bucyrus with two 15-ton Porter narrow gauge dinkeys and twenty 4-yard Western dump cars arrived at the end of the track on February 21st, 1914. The outfit was unloaded, the shovel erected and the entire outfit moved to the work, a distance of two miles, in ten working days at a cost of $531,92. This cost did not include team time for the company's teams. Five working days were consumed by the shovel crew alone, cutting dinkey tracks and other preliminary work, at a cost of $280.71. The shovel was cut in on March 18th. The actual number of days worked, including cutting in and moving back, from March 18th to June 2nd was 66.

According to the contractor's report the preformance for this period was as follows:

Shovel.....70-C Bucyrus, 2½ cu. yard dipper.
Locomotives.....Two 15-ton Porters.
Cars.....Twenty 4-yard Westerns.
Weight of rail.....40 pounds
Length of average haul.....3,000 feet.
Material.....Clay, hard pan and pipe clay.
Total number of days worked.....66.
Number of days actually digging.....57½.
Time lost moving back and cutting in.....8½ days.
Total number of cars loaded.....27,565.
Place measurement of material excavated, 87,000 cubic yards.
Average material excavated per working day, 1319 cubic yards.
Average material excavated per digging day, 1513 cubic yards.
Average number of cars per working day.....418.
Average number of cars per digging day.....480.
Highest daily output.....800 cars.

When we come to ascribe the credit for this performance, which is an unusually fine one, we turn first to the organization, to which is due a large part. Daniel Downey was superintendent and Henry Cook, foreman. R. L. Rogers operated and Lewis Jones craned the 70-C, and at the time the 60-C made the record above noted, Henry Cook was operator and Charles Pierson cranesman.

We are indebted to the courtesy of Mr. James T. McCarthy for the information we have given above.

Driven Falsework for Fill

He found his own front porch with wonderful accuracy, navigated the steps with precision, and discovered the keyhole by instinct. Once in the dimly lighted hall, there was an ominous silence followed by a tremendous crash.

"Why, what has happened, Henry?" came a voice from above.

"It's all right, Mary, but I'll—I'll learn those goldfish to snap at me!"—*Everybody's.*

?

There has been a shortage of water in Hammond, and some notion of the suffering is conveyed by the Lake County Times, which reports that "people went to bed thirsty and unwashed on the extreme south side."—*Chicago Tribune.*

The Chino Copper Company.

In the Northwest corner of New Mexico, at Santa Rita, is located the property of the Chino Copper Company, a part of the Utah Copper Company. The operating officials are as follows: J. M. Sully, manager, Horace Moses, superintendent of mines, Wm. H. Janney, superintendent of mills, R. C. Gemmell, consulting engineer of mines, F. G. Janney, consulting engineer of mills.

They have been actively engaged, for the past several years, in carrying on stripping operations and mining porphyry ores in which the copper occurs, by steam shovel methods.

This property is very interesting from the fact that it was worked by the Spaniards as far back as 1814. A number of old land marks are left, the principal one of which is their old block houses built out of adobe, for protection against intruders.

The Chino Copper Company's equipment consists of ten steam shovels, nineteen Porter locomotive forty-five six-yard Kilbourne & Jacobs Dump cars and forty-five twelve-yard Oliver dump cars. The total amount of trackage in use about the mines is about eighteen miles.

During the year ending December 31st, 1912, the amount of material of all classes moved by steam shovels, was 2,850,454 cubic yards. Of this quantity 2, 223,678 cubic yards was waste.

The average cost of steam shoveling for the year was 29.14 cents per cubic yard in place, equivalent to 14.03 cents per ton. The above costs include proper proportions of all charges of every nature. The cost of handling waste alone was somewhat lower than the average cost of all yardage, being 27.61 cents per yard, equivalent to 13.29 cents per ton. The cost of ore production was 16.52 cents per ton.

It is estimated they have blocked out about 80,000,000 tons of ore that will average about 2.24 per cent copper. About 90 per cent of the above will be available for steam shovel work. The over burden is being hauled outside of the ore zone. The ore is loaded into standard gauge 100,000 capacity cars furnished by the Santa Fe, and is hauled by them to the milling plant at Hurley, a distance of about 10 miles, where it is concentrated.

The total tonnage for the year is about 1,120,375 tons. The average copper content of ore treated during the year was 2.077 per cent. The average copper contents were equivalent to 25.6 pounds of copper per ton of ore treated. The total production of copper contained in concentrates for the year was 28,684,208, pounds.

The Excavating Engineer

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THE EXCAVATING ENGINEER PUBLISHING CO.

Bradlee Van Brunt, Manager and Editor

247 National Avenue Milwaukee, Wis., U. S. A.

The panorama photograph of Culebra Cut on the Panama Canal, enclosed with this number, was taken the early part of July. It is probably the most recent large photograph of the canal, showing the condition of the slides. As we go to press, the information received in regard to the last big slide is rather meagre. Its approximate location is shown. Press reports state that ships have already passed through. The presence of the two new big dipper dredges is fortunate, as they have undoubtedly hastened the opening by many weeks.

Construction Outlook

Business conditions throughout the country are still in a state of uncertainty. A shock as severe as that caused by the war, is not an easy one from which to recover, and recovery is bound to be slow. The past month, however, has shown a distinct improvement both in financial and psychological conditions. The bond market is improving; late in September the $100,000,000 bond issue of the city of New York was over-subscribed. Exports for the last month were greater than for the same month last year. Although the gross earnings of the railroads for July were 4 per cent. less than for July last year, the net earnings showed a decline of slightly more than 1 per cent., which though far from satisfactory, is much better than they have been. Indeed, six roads actually showed an increase in gross earnings and fourteen in net. These were mostly the middle western, southern and southwestern roads. Those who have been studying the situation say that the present financial pinch is probably not due to real lack of money, but to hoarding. This hoarding will certainly stop when confidence is restored, evidences of which are showing themselves now.

The rate case has been reopened, and little opposition is expected. Its passage should go a long way towards restoring this confidence. The River and Harbor Bill has become a law placing $20,000,000 at the disposal of the Government.

There is a marked falling off of activities in the railroad construction field, due to the approach of cold weather. Very few contracts of any size have appeared.

Road construction continues to be active, New York having $5,000,000 available for immediate use. Other states, such as Ohio and California also have big work in prospect. The unusual feature of this road work is the fact that it is being put under contract in the fall. This will undoubtedly stimulate confidence.

This is no time for pessimism, the rise may be slow, but it is coming as surely as the seasons. Experts are unanimous in the opinion that before us lies the greatest trade opportunity that our country has ever had.

John B. Carter

We are pleased to publish a photograph of Mr. John B. Carter, whose death was mentioned in our October number. This photograph, his friends tell us, is an excellent likeness of Mr. Carter before the strain of the last year or so began to tell upon him.

Three 85-C Bucyrus steam shovels loading ore in the Wakefield Iron Company's mine at Wakefield, Mich
with two 70-ton, one 100-C and one 18-B Bucyrus shovels. The 18-B revolving sh
This mine is one of M. A. Hanna a

The Foster-Creighton-Gould Company's 18-B Bucyrus shovel loading rock into 1½ yard cars at Rockwood, Alabama. The shovel can average a car a minute. A year's service in this work finds the shovel as good as new. Larger crushers are being installed to take care of the capacity of the shovel.

One of three 18-B Bucyrus shovels now at work on the Norwegian State Railways. This photograph was taken in Trondjheim where the shovel was in hard digging for railroad yards.

A class 25 Atlantic type shovel, 1½ yard di
Imperial Governamen Ra

eld, Michigan. This is the first open-cut mine on the Gogebic Range. Is is being stripped by Butler Brothers volving shovel is being used to clean up. The stripping is between 35 and 40 feet deep. Hanna and Company's new properties.

ard dipper being used on construction work by the rnment Railways of Japan.

A 40-R Bucyrus shovel engaged in the construction of the National Railroad of Haiti, West Indies. The photograph was taken when the shovel was working about four miles east of St. Marc. The road is 42 inch gauge.

A view of the Barr Clay Company's pit at Streator, Illinois. A 70-ton Bucyrus shovel may be seen stripping and a 70-C loading the shale. This, as may be seen, is done without blasting.

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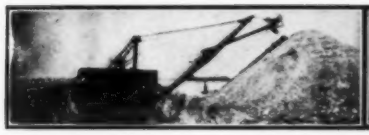


FIELD NOTES

DISCUSSION IS INVITED FROM MEN IN THE FIELD ON SUBJECTS HERE PRESENTED

Safe Way of Re-babbitting Shipper Shafts

In our May and August 1913 numbers we described quick methods of re-babbitting shipper shafts, the chief virtues of which were short cuts that saved time. One method was to allow the dipper to swing as far back under the circle as possible, in order to take the weight off the shipper shaft. Then, after taking off the caps, to run the handle up with the thrusting engines, thus lifting the shaft. By this method the thrusting engines are depended upon. The other method was to get away from using the thrusting engines by resting the end of the handle on ties placed on the A-frame and then raising the handle with the main engines.

In both cases the babbitting was done by cutting a small piece of babbitt from each cap, as the cap usually worn less than the box and consequently about the right thickness; Placing these pieces under the shaft and then pouring.

An experienced shovel engineer tells us that this method may be all right for a rush job, but is neither accurate nor safe. Nine cases out of ten there is no excuse for a rush job. Many pinions jump in the racks before re-babbitting. This is the way lots of pinions, gears, crank shafts, etc., are broken.

The bearings should be watched in order that they may not get away from you. Don't let the gears get down on the pinions, for if they do, the thrusting engine must carry the weight of the handles, the dipper and the load, and something is likely to break.

A rush job may be good, but it is more likely to mean re-babbitting at a not far-distant date. The lining up is likely to be inaccurate, and the surface of the box babbitt rough.

A job will last longer and be more satisfactory if done in time, when the shovel is not in operation. The best and most thorough method is to drop the dipper sticks on the ground, running them out of the saddle block. It is not necessary to take the saddle block apart. Raise the shipper shaft with a block and fall. Use small blocks of hard wood under the shaft, cut to the proper thickness. Lower the shaft on these blocks and keep tramming until lined up perfectly. Always smooth off the babbitt. This method takes longer, but lasts longer and is safer.

With other methods, sufficient room is not allowed in which to work. It is dangerous to work under shafts. It is far better to play safe and get a good job.

Some "Dont's" for Rock Excavation

There seems to be a tendency among shovel men, when digging rock, to make the shovel "bite more than it can chew". In other words, to try to force as big a move as possible—This is a mistake for several reasons.

In order to make an extreme move it is necessary to dig with the handle run out practically to the end. In rock work the twisting stresses are great and although a shovel will stand up to it for a while, a break down is very probable, due to the strains caused by hard digging in this position. A shovel does not exert its maximum power with the dipper run out as far as it will go. Furthermore, there is much more strength when the dipper is kept in as far as possible.

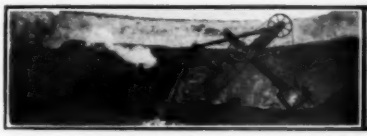
When an operator tries to stretch things and make a big move he often gets the front of the shovel so close to the face that in attempting to get the dipper back, he will frequently batter the front end of the car-body to pieces, pound the circle, and often cut the swinging cable.

Don't try to make too big a move in rock work.
Don't dig with the handle run out to its end.
Don't run the shovel up too close to the new face.
Short moves and more of them will get you farther ahead in the end.

One Reason Why Gears Wear Out

Not long ago a steam shovel manufacturer received a complaint from a contractor who was working a shovel in heavy rock. The shipper shaft bearings apparently would not line up. They were re-babbitted again and again and trammed with the greatest care. One thrusting gear and pinion persisted in jumping. The boxes were condemned and returned to the manufacturer. An expert was immediately dispatched from the factory. He discovered that there had been some heavy blasting close to the shovel.

Instead of swinging the dipper to the shot, it was swung away, thus exposing the thrusting gear. The exposed gear was covered with fine stone at every shot, some of this stone had also lodged in between the teeth Here it became encrusted. Consequently, this gear wore out much more rapidly than the one on the opposite end of the shaft. This was the source of the whole trouble. The lesson is simple. It is far safer to make two or three small shots instead of one large one. When a large one is necessary, back up the shovel. When this is not necessary, take every precaution to protect the machinery. One precaution is, as shown, swing the dipper to the blast instead of away from it.



DEVICES YOU OUGHT TO KNOW ABOUT

Wire Rope for Dredging.

By C. C. Sunderland.
John A. Roebling's Sons Co.

When a wire rope is used as a guy for the mast of a derrick, the stresses to which it is subjected may be for all practical purposes regarded as straight pulls. These pulls vary from time to time but there is nothing in their nature to cause the wires to break from bends.

When the wire rope is used on a hoist, a very different condition must be considered. The rope is not only subjected to a direct pull, but while the load is attached it is being wound around a drum and bent over the sheaves.

There is, therefore, not only the direct pull to be taken care of, but the wires must be much tougher than is necessary where the direct pull is the only stress to which the rope is subjected. When a wire rope is used for steam shovel or dredge work, the quality of toughness, that is, the ability to take numerous bends without breaking is of great importance.

This quality must exist first in the wires of which the rope is made, and secondly the construction of the rope must be such that unnecessary stresses are avoided. A steel rod is hard to bend and cannot be subjected to short bends many times without breaking. A fine steel wire on the other hand can be bent readily, and if the wire is tough it will take many such bends without injury. In a dredging rope, subjected to heavy bending stresses, it is important not only that the wires should be tough, but that they should be as fine in diameter as is practicable with due regard to other conditions.

The construction of dredging ropes therefore is such as to result in a rope with finer wires, and one which will bend more readily than the construction used when rope of the same diameter is not subjected to bends, or when the bends have a much greater radius than is practicable in dredging.

A fine wire while it bends more readily, of course wears more rapidly than a wire of coarser diameter. It is apparent, therefore, that there is a limit to the fineness of wire which can be used in ropes for dredging.

A study of this problem in its different phases has resulted in the development of dredging ropes of what may be regarded as standard construction. There are three standard designs; one a rope with 6 strands of 19 wires each; one with 8 strands of 19 wires each and the other with 6 strands of 37 wires each. The 8 by 19 rope is used more for steam shovels than dredges. In addition to the above constructions, wire rope made of 6 strands with 61 wires in each strand is used. This construction is not adapted to the smaller sizes of dredging rope.

The rope to use in a given case depends on the conditions, and consideration must be given to the relative importance of strength, pliability and resistance to abrasion.

All dredging ropes have a hemp core, around which the wires are twisted. When it is necessary to use rope of very large diameter it is customary to make the center an independent wire rope. This is a rope of standard construction with the usual hemp center. Around it are twisted the strands that make the larger rope in just the same manner that strands ordinarily are twisted around a hemp core.

The wire rope used on the dredges for dredging the Culebra Cut is of this construction. The center is a wire rope 1⅛ inches in diameter, composed of strands of 19 wires each and a hemp core. Around this wire rope 6 strands of 37 wires each were twisted, the whole making a wire rope three and one quarter inches in diameter. This is not only the largest dredging rope ever made, but the largest wire rope ever run over sheaves.

The successful operation of a dredging rope does not depend solely on the fitness of the rope to the conditions of use, although this is a factor of prime importance. If the rope is to serve satisfactorily it must be given reasonable care and attention. It is well to remember that a wire rope is a machine; the numerous wires form the parts, and these parts must work together without unnecessary friction or loss of energy.

A wire rope like any other machine will not last forever, but good treatment will do much to preserve it.

Wire rope failures are usually due to one of the following causes: heavy abrasion, over-strain, undue bending or corrosion. The appearance of the rope will indicate if failure is due to any one of these causes.

If the wires wear very thin in a short time, the rope has been subjected to undue abrasion; if the wires are worn but little and are broken off squarely, sticking out all over the rope, it has suffered either from unduly severe bending stresses or over-strain; while if the wires are pitted and rusty, there has been a lack of proper lubrication.

Abrasion is frequently the result of faulty grooves in wheels which have worn roughly, or are too tight for the rope, and it also comes from dragging a rope upon the ground or over a fixed obstruction.

Badly broken wires indicate a lack of proper proportion between the diameters of wheels and that

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of the rope. This may require a more flexible rope; though sometimes difficulties are removed by re-arranging the wheels.

Failure due to wire rope tearing apart suddenly does not often occur. When this does happen, it is due to an accident to machinery or appliances or to some other unforeseen condition upon the rope a load far beyond that for which it was designed. It may happen also because of a serious weakening of the rope at the point of rupture, owing to some local abuse. Such abuse should be, by all means avoided.

Not infrequently the life of a wire rope is shortened because of "kinking". If the rope is allowed to form a loop, and the loop is drawn taut, a kink will result. While the kink may be straightened it leaves a spot permanently weakened. It is not difficult to avoid this and it is important for it to be avoided.

The most common of all causes of wire falling short of the service which is to be expected when the size and construction are adapted to operating conditions, is lack of proper lubrication. Examinations of ropes which had to be replaced sooner than was anticipated often show the outside wires in apparently good condition, while the areas of the inside wires have been reduced materially and the strength of the rope much diminished. This is due to corrosion that could have been prevented by using a lubricant which would have reached and protected the inside wires.

A lubricant should not only penetrate to the hemp center and thoroughly saturate it, but it should also coat thoroughly the inside wires. The lubricant while doing this should have sufficient consistency to cling to the rope and not to drop off and leave it practically dry after a few days.

The poem printed below forms the subject matter of a small booklet published by Bruce V. Crandall, for the Haggard and Marcusson Company of Chicago. The book is cleverly and we are told realistically illustrated in colors. The artist, in order to increase the vividness of his moral, made a trip of investigation to a west side rooming house in Chicago, and sketched the animals at home. It is dedicated to the superior merits and the hygienic qualities of the "Tiger" Steel Bunk.

Gone are the days when we carelessly wandered
Deep in the straw of the sweat laden bunks;
Gone are the knot holes and dark cozy corners,
Also the cracks where our eggs hung in chunks.

Gone are the seams in the old foot and head posts.
Strong was our fortress in days of the past.
Gone is the woodtick and hard working greyback,
Also the flea,—and now I am the last.

Gone are the bunks which were once our old homestead.
Glowing red embers are all that remain.
Gone are the millions of fat, juicy bedbugs,
Likewise the straw that their red bodies stain.

Now in the bunk car looms up the black steel-work;
Shining steel springs take the place of the straw.
Now through the bunks the fresh air whistles freely;—
Worst place for bedbugs that I ever saw.

Gone are the days when we reveled in pleasure.
"Tiger" Steel Bunks put us all to the bad.
Gone is "Yours Truly" when he gets his grip packed.
Haggard and Marcusson sure make me mad!

REVIEW OF BOOKS and CATALOGS

We shall be glad to review in this column such books and catalogs as are sent to us. Books reviewed in these columns will be supplied by The Excavating Engineer Publishing Company at the prices named.

"S-A" ELEVATING & CONVEYING MACHINERY: Section 4, "S-A" General Catalog No. 19, 6″x9″, 126 pages and cover, illustrated. A complete catalog containing detailed description, specifications, prices, etc., of elevating and conveying machinery, screw conveyors, flight conveyors, bucket conveyors, gravity discharge conveyors, pivoted bucket carriers, and the units and parts of each. Stephens-Adamson Mfg. Co., Aurora, Illinois.

NEW PUBLICATIONS OF THE BUREAU OF MINES—Bulletin 38. The origin of coal, by David White and Reinhardt Thiessen, with a chapter on the formation of coal, by C. A. Davis. -1914. 390 pp. 54 pls.

Technical Paper 34. Experiments with furnaces for a hand-fired return tubular boiler, by S. C. Flagg. 1914. 32 pp., 4 figs.

Technical Paper 63. Factors governing the combustion of coal in boiler furnaces, a preliminary report, by J. K. Clement, J. C. W. Frazer, and C. E. Augustine. 1914. 46 pp., 26 figs.

Technical Paper 77. Report of the Committe on Resuscitation from Mine Gases, by W. B. Cannon, G. W. Crile, Joseph Erlanger, Yandell Henderson and S.T. Meltzer, 1914. 36 pp., 4 figs.

Technical Paper 79. Electric lights for use about oil and gas wells, by H. H. Clark. 1914. 8 pp.

Miners' Circular 17. Accidents from falls of rock and ore, by Edwin Higgins. 1914. 15 pp., 8 figs.

Only a limited supply of these publications is available for free distribution, and applicants are asked to cooperate in insuring an equitable distribution by selecting publications that are of especial interest. Requests for all papers can not be granted without satisfactory reason. Publications should be ordered by number and title. Applications should be addressed to the Director of the Bureau of Mines, Washington, D. C.

TURN-OUTS, SWITCHES AND FROGS—6″ x 9″, 40 pages and cover—A well arranged catalogue calling especial attention to an improved system of turn-outs and switches especially adapted to the requirements of mines using electric haulage. Twenty pages of this catalogue is devoted to an appendix wherein is collected data whereon mine operators may base their calculations. This appendix contains notes, sketches, tables, etc. on the following subjects: Standard switch sizes, pump sizes, gas caps, rail sizes, drilling and soldering solutions, the use of aluminum in mines, properties of bare and insulated copper cable, dimensions and properties of stranded copper wire, tables of resistances and tables of dimensions of pure aluminum, wrought iron, copper and brass wire, and a chapter of Donts. The book should prove of considerable value.

The Hitchcock Manufacturing Co., Tarentun, Penn.

SHOTS FROM THE FIRING LINE

Alabama

Birmingham—E. L. Byron, the well known southern representative of the Bucyrus Company, has been attending the Alabama Good Roads meeting at Montgomery, having been appointed as a delegate from the Birmingham district.

Birmingham—The contract for constructing 11 miles of second track has been awarded to M. M. Elkan, Macon, Ga., for the Alabama Great Southern Railway Company. Work to be done between Birmingham and Mobile Junction.

Hamilton—Boyd & Bradshaw, contractors, Birmingham, have been awarded contracts by the County Commissioners for the complete construction of approximately 50 miles of graded road. The contract will necessitate an expenditure of $60,000. The work will commence promptly.

Notes from Birmingham

By E. L. Byron

Capt. J. D. Henderson of J. D. Henderson Contracting Co. is getting his outfits under way on their Southern work near Greensboro, N. C.

Mr. C. B. Cranford has connected himself with the Morrow Construction Co. on their Southern work over in N. C. and will have charge of one of their outfits.

Mr. Harry O'Donald of the Morrow Construction Co. reports their work over in N. C. going along nicely. He has about 120 teams on a portion of it and three shovel outfits on the balance. Harry writes that every foot of this work (21 miles) is now covered.

C. W. Lane & Co. have their outfits well in hand on their Southern work near Danville, Va., and your correspondent is advised that this work is progressing very rapidly.

Colonel Wells, C. E., Southern Railroad made an inspection trip over their new work in Va. and N. C. and seemed well pleased at the progress being made.

Mr. Sharretts of Atlanta, southern representative for the Western Wheeled Scraper Co. reports the outlook for his line some brighter, says road contractors are beginning to buy tools as good roads of the south are bound to come.

The National Good Roads Congress to be held at Atlanta beginning Nov. 9th promises to be a big affair and many applications have been received for space and it promises to be a huge success.

Mr. H. G. Halleck of Halleck & Thom of Greenville, Miss. is just out of the hospital after quite a severe illness and we hope his recovery is complete.

We hear of the death of Don Hearin, Jr. youngest son of Mr. and Mrs. D. B. Hearin of Baton Rouge, La. The family have our deepest sympathy. To know the little fellow was to love him.

Mr. Geo. F. Ramsey of Memphis, reports his work at Marion, Ark. having been shut down account the levee board not having sufficient funds. We hope to hear that this shut down is temporary.

A meeting of the Alabama Good Roads Association will be held in Montgomery on October 21st and 22nd and a large delegation is expected. The good roads movement in the south is beginning to attract great interest. A. J. Rountree, of Birmingham is national secretary of the association.

T. B. Black of Birmingham left Sunday to take a position with E. A. Stacy at Friars Point, Miss. to operate his 40-C Bucyrus shovel.

J. T. Moses of Bessemer, Ala. has just returned from Marion, Ark. where he has been craning a 40-C Bucyrus shovel for Geo. F. Ramsey on levee work near Marion.

Mr. Irwin F. Smith of Vardaman, Miss. who has about seven miles of drainage work near Van Vleet, Miss. has recently been appointed to a civil service position by the U. S. Government and therefore has his contract for sale with or without machine.

The Southern Asphalt Paving & Construction Co. have just been awarded the first unit of the proposed extensive sewerage disposal plant which will be located near Bessemer, Ala. costing about $180,000.

Work on the A. G. S. Ry. between York, Ala. and Meridien, Miss. is progressing satisfactorily under the direction of the Elkins Contracting Co. who have the general contract.

Arkansas

Arkadelphia—J. N. George & Sons, at present grading on Memphis, Dallas & Gulf R. R., near Shawmut, have been awarded contract for 6-mile extension of logging road of A. L. Clark Lumber Co. in Pike County.

Wynne—The contract for the excavation of about 2,325,000 cu. yds. of floating dredge work has been let to W. S. Coleman & Sons, Paragould, Ark.

California

Los Angeles and Vicinity

By G. H. Hutchinson

C. H. Hudson, 509 Trust & Savings Building, Los Angeles, is low bidder on 10.2 miles of state highway in Santa Barbara County, between Stone Creek and El Capitan Creek, at a price of $79,191.40. In the 10 miles are 204,600 yards of excavation. Mr. Hudson has just purchased an 18-B Bucyrus revolving shovel that will probably be on the job by the time this goes to print. We are promised some interesting things by our friend Hudson, in the way of dirt moving, he states when he starts digging, the country around his work will resemble a desert sand storm, and you are all invited to witness the demonstration of new records in yardage moved.

J. R. McKnight is just finishing up on the Santa Ana Road job, and expects to move his machine north on some state highway work, in the near future. Jack Dupray is running the 18-B and moved 13,000 yards in 24 working days on the Santa Ana job, which is going some, considering the nature of the material, which in places was extremely hard.

Billy Gallagher the veteran steam shovel operator, was in Los Angeles recently on a business trip, coming here from San Diego. He advises he has a large visiting list among the senoritas in old Mexico, along the line of the San Diego and Arizona.

Joe LaBell has licked the Germans around the U. S. Cafe, and in order to keep in fighting trim has decided to go to work, and is operating a 95 for the Southern Pacific at their new yards just inside of the western city limits.

John Anderson, formerly master mechanic of the Los Angeles Aqueduct, is in town looking for a $300 job. Anyone wanting a first-class man might get him for less. John, during the building of the Aqueduct, piled up a few plunks edgways, and has still got them.

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K. Sweet is operating one of Sharp & Fellows shovels for Robert Sherer & Company, loading ballast for the Pacific Electric.

The French and English got too thick for Chris Kaehler at the U. S. Cafe, and he has moved his base of operations to San Francisco. Chris, while here, was acting local secretary for the A. U.

Chas. W. Miller, with headquarters at Kingman, Arizona, and Mrs. Miller, have been in the city combining business with pleasure. At the present time Mr. Miller is busier than a hen with one chicken getting ready to get out about 4,000 yards of riprap and putting it in place along the lines of the Santa Fe near Victorville, Cal. Also has about 9,000 yards of riprap to place close to Barstow.

San Diego is about the best advertised city in California. To interest tourists and others, they are offering some special inducements such as an exhibition all of next year, miles and miles of good roads, and the most enjoyable climate in America. In addition to the above we noticed on a sign in front of the Spreckles Theatre:—

SEPTEMBER 19TH AND 20TH,

THE GAIETY COMPANY

IN

"LETS GET MARRIED"

A $2.00 PERFORMANCE FOR $1.00.

* * *

Here is a chance for a lot of old stiffs who have only $1.00 left!

Herewith photograph of Clark Newcomb, time keeper, San Diego & Arizona Railway, knocking about in the Imperial Desert in California. It looks to us as though a couple of bails of hay would make the mule look better, and about four stacks of wheat would take some wrinkles out of the time keeper.

Lynn S. Atkinson, 917-18 Los Angeles Investment Building, Los Angeles, is about the busiest contractor in this part of the country. In addition to the lowering of the Broadway Tunnel in Los Angeles, about a $180,000 job, he has under way 29 miles of state highway in Kern County. For this work he is planning on building about 25 miles of railway for the purpose of handling crushed rock and supplies. He is putting in a crusher and one or two steam shovels. For the past thirty days he has been buying equipment for the various jobs.

Mr. Atkinson is one of the successful contractors in this country and never starts anything that he does not finish, is a very genial gentleman to meet, and knows exactly what he wants.

C. W. Harris, chief engineer, Pacific Coast Lines of the Santa Fe, was a guest recently of Sharp & Fellows, in Mr. Fellows' yacht, "Virginia D" on a fishing expedition to Catalina Island for several days. After limbering up on a 15 or 20 pound Rock Bass,

Exhibit "A"

and a 40 or 50 pound Yellow Tail or two, the next member of the finney tribe that Mr. Harris kooked was a Jew Fish that was said to weigh 435 pounds. After considerable persuasion and loss of several quarts of perspiration the single "O" Hebrew was within reach of the ship's tackle,—as evidence, a photograph herewith, marked "Exhibit A".

Mr. Harris states the next time he goes fishing he will use counterfeit Mexican dollars for bait, and it is safe to say it will take a lighter in connection with the "Virginia D" to bring home the catch. We are advised that on the return trip between Catalina and San Pedro, two 24 pound Albicore were hooked.

Your correspondent has not had the pleasure of interviewing Mr. Harris regarding this trip, or we presume there would be considerable more to add to it.

Herewith photograph showing the bunch, minus the Mexicans who are at the front, building the San Diego & Arizona Railway for Robert Sherer & Company.

Canada

Cedars, Quebec—Joe Lasalle has been craning a 70-ton Bucyrus shovel at this point for the last two years.

Bruce Mines, Ont—A contract has been let to the Ontario Northern Construction Company, with headquarters at Bruce Mines, Ont., on a percentage basis to build a 325-mile extension from Bruce Mines northerly. Work may be started in January on the heavier sections of the line, and the company expects that about 50 miles will be completed, by July or August of next year The maximum grade north will be 1 per cent, and south 0.6 per cent, and the heaviest curves will be 6 deg.

Macleod, Alta.—A contract is reported let to the Northern Construction Company to build south from Macleod, Alta., and a contract has been given to the McArthur Construction Company to build a section of about 25 miles on a line to St. Paul de Metis.

Notes from Montreal

By B. St, John

Chas. Rees of the American Locomotive Company is in town on a business trip, but seems to be getting considerable pleasure out of same renewing old acquaintances. He and Louis Ott while lunching to-day made a record in moving wet material, although the haul here was very short their table being located near the bar. Charlie is looking remarkably well and seems to be enjoying life.

A. B. Cook of the Cook Construction Company, Limited, is in town and states that their work here and at Halifax is progressing very favorably.

The Glengarry Construction Company who are building the Stormount & Glengarry Railway, state that their 18-B Bucyrus shovel recently purchased is giving the best of satisfaction loading material into Western 1½ yard wagons. They have recently secured two 85-C Bucyrus shovels from the Canadian Pacific Railway Company, in order to complete as much as possible of the line before cold weather sets in.

The Board of Control of the City of Montreal are making a big effort to find employment for as many men as possible during the coming winter, and are figuring on starting work which was held up temporarily on account of financial depression.

Notes from Vancouver.

The double track of the C. P. R. between Revelstoke and Taft, 25 miles, and that between Kamloops and Hopgood, about the same distance, will be put in operation soon. The double track system across the new bridges at Harrison River and across the Pitt River are also now in operation, giving continuous double trackage from Vancouver to Ruby Creek, 82 miles.

Sir Wm. Mackenzie states that the Canadian Northern main line to Vancouver will be completed by the middle of December.

The Pacific Great Eastern Railroad which is building from Vancouver, B. C., north to Prince George, 480 miles, has been authorized to open for traffic the section from Lonsdale Avenue, North Vancouver, to Horse Shoe Bay or Whitecliffe, 12.7 miles. The line is under construction from this point to Squamish, at the head of Howe Sound, and is in operation north of Squamish via Cheakamus on about 20 miles. The grading work is finished to Lillooet, 100 miles from Vancouver, and track laying is now under way. It is expected that track laying and ballasting on this section will be finished this year. The remaining section from Lillooet north to Prince George on the Grand Trunk Pacific is all under contract.

Colorado

Grand Junction—F. A. Mengel has been promoted to the position of night superintendent for Winston Bros. Company on their High Line Ditch work near here. He has charge of all machines and men.

There are two class 20 machines in operation running double shift. The engineers are Will Cox, Cal Addington, Ray Adams and John Addington, and the firemen, Jim Addington, Harry Beal, Lee Addington and W. Dean. Thomas Sherridan is general manager. The employees of Winston Brothers are enjoying the delicious fruits produced on the Grand Junction ranches.

Notes (Mostly Matrimonial) from Denver

By H. N. Steinbarger

(Our readers probably noticed the absence of notes from the Intermountain Section in the October issue of this journal. We believe an explanation is due. In the September issue there were a considerable number of notes sent in at the last moment and were published against our better judgement. When news from the field of action concerning the moving of earth and rock, and something that would interest our readers, who are in the main contractors, that is what we mean by "Shots from the firing line." Instead we have had a lot of "hot shots from the firey pen" of our Intermountain correspondent. When the Colorado and Utah notes arrived, our October issue was ready for the press. We found so much rubbish in the notes that nothing was left to publish after we got through culling. We decided then and there to despense with the services of our Intermountain correspondent and accepted his resignation forthwith. Since then we have had so many urgent appeals from him that we have decided to place him on probation with the hope that he will stick to the "narrow trail" and give us something that we want to read. His thoughts, however, seem to be turning along matrimonial lines, perhaps some of his friends may see fit to tell us if there is a reason.

—*The Editor*)

It is reported to us that Barclay Cook, that old time "General of Construction" who has been superintendent for Robert Russel for several years past, is about to enter the state of matrimonial bliss. Barclay has made his headquarters in Denver for about seven years. We don't know who the fortunate young lady is at this writing, but we will diligently look into the matter and report later on. There must be some truth to the rumors that are floating about for it is said that a great deal of influence has been brought to bear to induce Barclay to accept very lucrative positions and in several directions. He has turned a deaf ear to them, for "lo these many weeks," so it must be that "the one girl in the world" has him properly cornered. He seems to like it too because he is wearing a smile these days that really won't rub off.

In order to keep that editor quiet in his seat we deem it best to say that "Hobo" Duffy a man of unimpeachable integrity is authority for the above information, so we are very sure it is authentic.

What do you think of that Charlie Dooling. The entire Burlington contract work from Guernsey, Wyoming, West, has been closed down, yet Charlie is hanging around Guernsey as if he were afraid the contract might get away from him altogether. Well from all reports it strikes us that he is wise to hang around that little town of Guernsey, as from the descriptions of a certain young and charming resident of Guernsey and the enthusiasm shown by those who tell this story he will do well to look after his laurels, for if he doesn't we believe about any one of a half dozen young fellow's will hike right back to Guernsey the moment he leaves. Now, just what this all means we don't quite understand. In our present frame of mind, influenced by events of the past month we can see only one thing, that is more wedding bells. Well the best of us have to capitulate sometime in our lives, and we believe Charlie has reached about the most susceptible age; therefore if there isn't an announcement before many moons, well then we haven't had another "Hunch."

We'll wager that just the moment the Burlington work at Guernsey Wyoming was closed down Al. Gibbons of the firm of Gibbens Brothers, beat it for Salt Lake City. Oh! it's the same old story. It's in the Fall air. They simply can't escape, and Al. is no less susceptible than the rest of the general run of contractors. They are all looking for that big contract and sooner or later they will get it and we believe it is now time for Al. Gibbons to sign up. At any rate all of the reports show a tendency in that direction. Well here's our good wishes again. We have got lots of them, and we certainly like to pass them around.

From observation we believe that Charlie Campbell, although rather young, and unsophisticated, is going to follow in the foot steps of some of his co-workers, and it wouldn't surprise us if this happened very soon. Charlie went down to Denver shortly after the Guernsey work closed down, but apparently didn't tarry very long as he hasn't reported for some little time. As he left very mysteriously and said nothing of his objective point it wouldn't surprise us if he had hiked for Salt Lake. You know maintaining a residence out in Utah for a period of something over a year would make almost anyone of Charlie's age want to go back again and look around to old stamping ground. This time

it isn't a hunch, but merely our deductions from a vast amount of first hand information, as well as rumors. Some more best wishes.

The editor of this journal took decided exception to the September notes from the intermountain section which got by him before they could be censored. He's on a vacation but we wager that when he sees the above he will think we are starting a matrimonial bureau or a column of society news.

Dan Griffin is back with us once more. The Kilpatrick Brothers' contract on the Burlington Railroad, in Wyoming, has been closed down temporarily. The Judge closed up the Denver office but hardly had time to open up a new office at Guernsey, Wyoming, so, therefore, the only big table to put his feet under is down at John Allens on Market street in Denver. John and the Judge are real cronies, so we don't know of any better arrangement than for the latter to make his headquarters there.

Allen & Lafferty have just completed their contract on the new D. & R. G. line at Serviletta, New Mexico. Their outfit is now enroute to Denver and will probably be stored for the winter unless something new turns up in the near future. They have had a pretty good season, so, are probably perfectly willing to rest on their oars and take things easy until Spring.

John "Brigham" Young and Bob Dooling started from Denver for Philadelphia and Boston to see the big World Series base ball games. It is stated that when the train got along towards Missouri Bob began thinking of that cozy fireside, family and friends in Kansas City. When they reached that point he couldn't stand it any longer so forgot the Worlds Series and remained at home. Maybe Bob has been stung with that matrimonial bee also. You never can tell because the air is full of them out in that western country. John went on and we are so worried about that "little blonde" for not a word has been heard since he left Denver up to the time this issue was ready for the press. The buildings are awfully tall down East and it wouldn't surprise us at all if John lost his return trip ticket and a few other valuables while trying to count the number of stories. We certainly hope to hear the good news of his return in due time to his good old stamping grounds.

Sometime back Young & Crook sold their 70-C Bucyrus shovel to Sprague & Nisely to be used on the Burlington work west of Guernsey, Wyoming, Sprague & Nisely in turn sold their Marion model 60 shovel with tunnel boom equipment to Gibbons Brothers to be used on their tunnel job on the same line. After these trades were completed and just about the time both shovels began to change the face of the earth in that section the word came from Burlington headquarters to shut down. It is, however, hoped that it will soon open up again.

Word comes from Grand Junction, Colorado, that Winston Brothers contract on the Highline canal of the U. S. Reclamation Service is progressing to the satisfaction of all concerned. The work is under the general supervision of H. W. Battin. The Winston Company are using two class 20 Bucyrus dragline excavators, also one 40 ton steam shovel, and a number of teams. Fred M. Crane of Omaha who had a sub-contract for eight miles of the extreme east end of the canal from Palisade, Colorado, west, has his dragline in operation, and is making a great record.

W. H. Knowlton has 7 miles of the extreme west of the canal, but so far has used nothing but fresnos and wheelers. Later on it may be possible to use graders. We understand that F. E. Winston is very active on this work and has his family with him in Grand Junction.

Every now and then there is published in various journals suggestions to contractors in general as to what field of action it is best to enter during these times of business depression. Out in the intermountain section, they are going back to nature. Take for instance C. R. Conover, of Arvada. He's opening up about 640 acres of fine land in the neighborhood of Platteville, Colorado, and just now is busily engaged in putting in wheat on the entire ranch.

H. H. Nickerson of Douglas, Wyoming, is another farmer from away back. Over near Dacona, Colorado, he is planting 640 acres of wheat and from crop reports from that section we believe that next season will hand him a great big bunch of the "staff of life."

P. J. Cain of Laramie, Wyoming, is reported to be interested in a big ranch near Glenrock, Wyoming, and is going to raise cattle. We'll make a guess that Pat must have cleaned out some of those famous "Pitch" games in the same old easy manner he has for handling such propositions.

Field B. Arthur of the firm of Arthur & Potter of Pueblo, is talking about plowing about 500 acres of land in the southern part of the state.

We could keep on telling of contractors farmers all over that section, so, it looks like the so called hard times are not going to bother any of that wild western bunch.

It is reported that Smith & Winburn have just taken a contract for repairing the Hebron reservoir of the Maxwell Irrigated Land Company of Maxwell, N. M. This reservoir was partially washed out sometime ago and will be repaired and made much stronger.

Henry Heiser—now we said something! Henry is buzzing around like a busy little bee these days. Not stinging anybody however—just extending the glad hand to everybody. Why? We don't know. An intimate friend of Henry says he recently looked in to say hello, and found Henry assorting many pieces "dry goods" (not wet goods) and other things. The intimate friend thought of wedding presents. Can't be—for Henry has been married for many years. Christmas! that's it, for Henry's heart was ever in the right place. All those things must be for his friends. Time will tell.

It was probably observed by many of our readers that in our June number we had a "hunch" in regard to a certain gentleman who was making frequent visits to Salida, Colorado. We are delighted to announce at this time that Mr. Robert MacIntosh Hamilton was married in Salida, Colo. on October the 14th. We extend to him our best wishes.

Clark & Hasselman of Pueblo were recently awarded a nice contract for enlarging and strengthening a dam on the irrigation system of the National sugar Refining Company at Sugar City, Colorado. This is a nice piece of work and includes the driving of a large number of piles, some concrete work, and a large quantity of earth fill.

DeRemen & Olsen of Denver have a large contract near Wendover, Wyoming, building a large irrigation system, including a dam, canals, etc. The work has been covered by sub-contractors and is being rushed to an early completion. This firm also has a contract near Huerfano, Colorado, which is another hurry up job to get a system complete in time for filling the reservoir with water during the winter months.

Connecticut

New London—New York, New Haven & Hartford R. R. has awarded a contract to Holbrook, Cabot & Rollins Corporation, Boston, Mass., for constructing a new main line in New London, Conn., from Hallam St. to the terminal of the new bridge over the Thames River.

Illinois

Notes from Chicago

By Clapp, Nostrom & Riley

Mr. Bert Pixley has just finished track laying on the Wabash.

Joe Swigart has finished his dragline work on the Range and is stopping here. Joe always wears a smile and even these times does not seem to make him shake it off.

W. S. Stewart has left to take a position on the Welland Canal.

S. M. Boorhem has started his dragline at Ferryville, Wisc., where he has a sub-contract from J. J. McCaughey & Son on the Burlington. He is double shifting, so as to finish work this season, if possible.

H. W. Nelson of the H. W. Nelson Construction Company spent a day in the city last week. He is too busy to tary long. Mr. Nelson has a faculty of staying right on the job. He reports his work as going fine and is very enthusiastic over his 70-C Bucyrus shovel and Western 12-yard cars, and his greatest pleasure is watching them work.

E. M. Hall, the genial and well known salesman of the Davenport Locomotive Works, has gone south on a three week's trip. Ned always gets what he goes after and he is pretty sure to land this deal. His friends will all be glad to see him back —even his competitors like to see him get the order.

Mike Costello reports his work at Danville, Va. as progressing fine. Mike is more than pleased with his work. He is one of the lucky ones. Capt. Bob Russell is the head contractor.

A. J. McDougal, one of the old well known contractors and formerly of the firm of McDougal & Yale, will leave in about two weeks with his wife for California to spend the winter. His many friends wish him a pleasant time and safe return.

Cleary, White & Duffy are getting well started on their work at Mountain, Wisc., on the C. & N. W. Mr. Duffy has charge of the work and is pushing it with his old time vim.

M. J. Hayes of Hayes Bros., Janesville, Wisc., has been quite sick. We are pleased to be able to say that he is on the road to rapid recovery and will be in the harness again as soon as there is any business in sight.

Will Lynch was in the city a few days visiting old friends. He has gone to Massachusetts to work for John Marsch.

Tom Torphey, one of the best rock tunnel men in this country, has just returned after an absence of seven years in Canada. Tom surprised his many friends. He is looking fine and has gone to Massachusetts to help John Marsch complete his work.

The many friends of Pete Peterson will be sorry to learn that he has passed away. Mr. Peterson died the first of the month, he being sick only a few days. Mr. Peterson was one of the best known men that followed railroad work.

Elgin—Contract has been awarded Logan & Giertz at $12,000 for building state road in McHenry county leading from Woodstock to Kane county line.

Muddy—E. E. Headley & Son, of Muddy, Ill. have just finished their contract at Wittington, Ill., and have a Bucyrus 14-B steam shovel and 15 teams idle. Anyone having work to let, write them here.

Fox Lake—J. M. Auld is running a friction type Bucyrus shovel for the Consumers Company in a gravel pit here.

Chicago—Sam Harder is running and Martin Cody, firing an 18-B Bucyrus shovel for W. J. Newman at the Crane Company's new plant at 40th and Kidzie. They are digging heavy clay for filling around the buildings. Max Nagel is foreman.

Indiana

Sullivan—J. B. Dorris has an outfit idle consisting of 40 teams two elevating graders and two engines, and will be glad to take on a new job.

Kansas

Notes from Pittsburg

By W. S. Russell

The weather has turned cool and the coal market is benefitted thereby. Prices have asvanced slightly and we quote as follows: Lump per ton $2.25, net per ton $2.00, mine run per ton $1.75, mill run per ton $1.60, slack per ton $1.35, f. o. b. railroad cars at the mines.

Coal operators and dealers expect a good demand this season, the fall trade having already commenced. The wholesalers in heat have started up their plants, and the prospect that steam plants may not get fuel oil, is encouraging to the coal man. Natural gas is not considered much of a factor, as the supply is limited and is not to be depended upon. In the coldest weather, it always runs short and a supply of coal is usually put in to be ready for this emergency.

General business in Pittsburg is good and on Saturdays Broadway, the main street, is crowded with people from the country and small mining towns doing their weeks shopping. The new lighting system on Broadway is completed and the event will be celebrated by a street carnival at night when the electric lights will be turned on for the first time.

The strike of the street car conductors and motormen has been settled with but little gain to them and a large loss in wages during two and one-half months of idleness. Cars are now running as usual.

Coal stripping with steam shovels is a properous business and there are now 32 of them located in the Pittsburg district, 8 new shovels having been installed during this year. Besides this number, 2 Bucyrus shovels have been placed in the Rich Hill district, making 34 in all, from which it is evident that coal stripping pays. These shovels have all been working with but little lost time and there is room for more to come.

The Bucyrus 175-B steam shovel recently installed a mile south of Mulberry, by the Moka Coal Co., is now working and is digging its way down to the coal in about 20 feet depth of overburden. Mr. Lee Bigley is superintendent in charge of field operations. The coal is of best quality and in good demand.

The Pittsburg-Scammon Coal Co., with offices in the Globe Building, Pittsburg, report that their Bucyrus 150-B steam shovel is working every day on their new field a mile south of Scammon, and the coal being shipped is of extra good quality. Harry Miller is manager in charge of field operations.

The Minden Coal Company, are now shipping coal from their strip mine near Minden. They are stripping with a model 271 Marion steam shovel. O. S. Hubert is manager in charge of field operations. The company's main office is in Joplin, Mo., with a sales office in the Midland building, Kansas City. W. H. Meierstein is secretary and general sales manager.

J. H. Klaner of the Ellsworth Klaner Co. is taking a vacation up in the big woods in Canada.

The Clemens Coal Co. of Pittsburg are doing great work with their 150-Bucyrus steam shovel stripping at North Pittsburg, operated by J. M. Jones engineer and John Rhodes cranesman. Last week they made a record of 1940 cubic yards in 9 hours.

The J. J. Stephenson and Son Coal and Mining Co. of Pittsburg are stripping a 170 acre field near Midway, with a model 251 Marion. They have an up-to-date plant and are in

full operation, shipping coal every day. W. H. Stephenson is manager of the field.

The Whitmer Contracting Co. of Pittsburg now have their stripping plant in full operation near Frontenac, taking out coal for the Santa Fe Railroad. They have a model 271 Marion steam shovel for stripping the coal also a 1½ yard revolving shovel for loading the coal into tram cars. D. H. Whitmer is general manager of operations.

A. L. Billings, secretary of the Ideal Coal & Mining Company, of Hume, Mo., was a recent visitor at Pittsburg.

T. L. Gatke, representing the Waterbury Company of Brooklyn, N. Y., manufacturers of the celebrated Waterbury wire rope, spent several days at Pittsburg recently and secured several nice orders for their hoisting rope from the stripping firms operating steam shovels.

Ira Fleming, president The Fleming Coal Co. of Kansas City, made a trip to Pittsburg recently. They are stripping coal with a 175-B Bucyrus steam shovel at Skidmore, Kansas.

W. J. Lester, a mining engineer of New York City, spent a week at Pittsburg last month looking over the coal stripping.

The Bucyrus Company have put out a revolving steam shovel specially adapted for loading coal in the strip mines into tram cars. This shovel is built in two sizes. One weighing 30 tons with a 1¼ yard dipper and one weighing 40 tons with a 1½ yard dipper. It is expected that these shovels will effect a great saving over the present method of hand labor, where conditions are suitable to their use.

C. D. Smith and Walter Smith of the firm of Smith, Scott & White, coal stripping contractors were at Pittsburg a few days last month.

There are good opportunities for parties having means to engage in the coal stripping business in the Kansas field. Strip coal land can be bought or leased at reasonable prices. Further information will be furnished by the Pittsburg Machinery Company, No. 806 North Broadway, Pittsburg, Kansas.

The Bucyrus Company have a stock of repairs for their coal stripping steam shovels at the Pittsburg Machinery Comapny store room, which is a great convenience to owners of Bucyrus shovels.

The Pittsburg Machinery Company is located at 806 North Broadway, where they accupy an entire building with a large stock of coal miners, mill and contractors supplies, tools, and machinery, engines, pumps, motors, etc., also repairs for Bucyrus steam shovels. John Frain and W. L. Sullivan will look after the interests of their customers.

Kentucky

Kitel—Mr. and Mrs. Tom Poole have flown from the vigorous atmosphere of the Welland Canal, where "they" were running a Bucyrus dragline for Yale & Reagan.—"No more Canada for we'uns," say they. They are now with Morris, Shepard & Dougherty on their Burlington work between Metropolis, Ill. and Paducah, Ky. Morris, Shepard & Dougherty are working one dragline and one steam shovel on fill work. This is the work which was shut down some months ago, and was re-opened recently. We are promised more news of this work when they get settled.

Fulton—Henry Meiers is running a Bucyrus 70-C for the H. W. Nelson Co., here.

Louisiana

St. Joseph—Robert Nicholson, St. Joseph, La., was the successful bidder for contract for the 35,000 cubic yards levee enlargement, according to the plans and specifications furnished by the State engineers. The work will start at once.

Mississippi

Greenville—On October 5th a contract for three steel bridges in the Bogue Philia Drainage District was awarded to Larimer & Burget Bridge Co., Memphis, Tennessee, for $6847.00. Two of these bridges are 180 feet and one 75 feet long. About 45 more bridges will be constructed in this district during the next two years. Morgan Engineering Company, Memphis, Tennessee, are the engineers.

Clarksdale,—The Canal Construction Company, Memphis, Tennessee has been awarded contract for the construction of the Coahoma Drainage System, which is to reclaim approximately 18,000 acres of land. The main canal will be 14 miles long with a 22-foot bottom varying in depth as the lay of the land requires. The contract will necessitate an expenditure of approximately $65,000 and will require about twelve months for execution

Missouri

St. Louis Items

By A. J. Michel

George W. Gist made a trip to St. Louis last week looking over profiles for 20 miles of new construction work in Missouri. Should he accept the work he will be in the market for teams as the work in places is so that teams may be used to best advantage.

There will be no transportation on any road as same is entirely new line being promoted from Bismarck, Mo., west.

Mr. Gist has just finished his work at Mullens, W. Va. and has a standard guage steamshovel outfit idle suitable for heavy work. Nothing too large for him. Anyone hearing anything that may interest him wire or write him Oak Park, Ill.

Costello and Oliver were the successful bidders on the levee work let last week at Kings Lake near Apex, Mo. There were several bidders. The work was let for 24 cents per cubic yd. Prices ranging as high as 38 cents was bid on this work. Mr. Costello will sublet this work in small amounts. Address them care of Elsberry Drainage District, Ellsberry, Mo.

W. H. Thompson has 6 teams idle which he would like to place on some R. R. work. His address is 333 Pennsylvania Avenue, University City, Mo.

E. D. White dropped in to see us since our last issue. He is idle at present. Anyone wanting the services of a good foreman for construction track or sewer work will find Mr. White an A No. 1 man. Address him Dow, Ill.

More idle labor is on the St. Louis market now than any time the writer can remember. Good Austrians, Bulgarians, northern Italians as well as other nationalities and likewise a vast horde of American or hobo labor. The prevailing wages are $1.50 per day.

Anyone needing a bunch of men quick will have no trouble in securing just what may be desired. Write or wire the Michel Labor Agency, 9 S. 9th Street.

Columbus Jones has about finished his bank widening on the Wabash R. R. in western Missouri and is in the market for any kind of railroad or construction work. He has a Thew shovel, ten team outfit and a complete station outfit of wheel barrows, shovels, planks, tents, etc.

His address is 765 Auburt Avenue, St. Louis.

Richard Evans reports his work at Paducah, Ky. making very rapid progress. He has some steam shovel work on the P. & I. R. R. near this place.

The Morrow Construction Co. secured the contract on the Southern Ry. from Alexander to a point southeast for a distance of 10 miles in North Carolina. Their address is Greensboro, N. C.

Rust Swift have resumed operations on their river contract at Eagles Nest Island on the Mississippi River. The Government appropiation for Rivers and Harbors making it possible for several river contractors to resume work on their former contracts.

F. M. Nicholls dropped in last week for 25 willow cutters. We secured them in less than one hour. Mr. Nichols has the contract for cutting several hundred thousand yards of willows for matting used for shore protection.

He is in the market for a couple of teams. Anyone having a couple to sell write him at Grafton, Ill.

The building committee of the Board of Education of East St. Louis, Ill. have plans and specifications available for the erection of an Auditorium. Estimated cost $100,000.00.

Geo. Lester the "Premier Camp Cook" is back on his old job for Rust Swift. Lester has the reputation of having more hobo followers than any other cook in camp.

There is very little construction news at this time. Indications however point to a very prosperous Spring and Summer. Several contracts are in view and at least one large corporation is making inquiries regarding large numbers of workmen for early Spring. We believe however the continuance or abrogation of the war has a great deal to do with the prosperous time referred to.

New York

Notes from New York

Winston & Company's 18-B shovel will be operated during the Fall and Winter on a new road contract near Hancock, Maryland. It will be in the capable hands of Billy Wilson.

Dave Henessey states that in the next six months he will surely upset all existing records for moving dirt with narrow-gauge plant. The work is on Wilson & English contract at Providence and of course the shovel is a 70-C. Keep after em Dave, say we.

Fort Plain—D. J. Sullivan is inspector of the dredges for S. Pearson & Son, Inc., on the Erie Barge Canal Contract 20-B.

Rome—James O'Hern tells us that he is "swinging the old dipper once more" for Grant Smith & Co. and Locher on the Barge Canal in stiff rock digging.

Van Nest—L. I. Rocciota is operating a 70-C Bucyrus shovel for the Keystone Construction Company at Yonkers, N. Y.

North Carolina

Greensboro—A contract was awarded by the Southern Railway Company, to the Morrow Construction Company, Greensboro, N. C., for second-track work, about 10 miles, between Alexander and Craggy. Will require 250,000 cubic yards solid rock excavation and two steam shovels will be used.

Ohio

Cleveland—Louis Augustine, who has been operating a Vulcan shovel for the Cuyamel Fruit Company in Spanish Honduras, has returned to this country. Our readers will be interested to read a short article in regard to his work in this number. The poor condition of the fruit market made it necessary for the company to close down shovel operations, and he is now looking for another job. He can be addressed, care of Cleveland Lodge No. 18, B. P. O. E., Huron, Road.

Oregon

North Bend—H. M. LaBelle is operating a Bucyrus shovel for the Hauser & Hauser Company at Camp No. 3.

Pennsylvania

Scenery Hill—James C. Barr is operating a Bucyrus shovel at Marianna on the Chartiers Southern Railroad. His address is R. R. No. 1, Box A.

South Dakota

Watertown—A contract has been awarded P. E. Shugart, Nevada, Ia., by South Dakota Central Railway Company for constructing 16 miles extension to its line north from Watertown, S. Dak.

Tennessee

Fall Branch—C. B. Eades advises us that he has quit work and has gone on a diet of fried chicken at his place. He intends to stick as long as the supply holds out.

Curve—J. O. Shields is operating and Wm. Johnston craning a 60-C Bucyrus shovel for the Illinois Central Railroad at this point.

Virginia

Richmond and Vicinity

By J. G. Skelton

Twenty-six miles of road work has just been let in Estillville District. Southern Brothers of Morristown, Tenn. were awarded fifteen miles and Vaughn & Redd of Gate City, Va. eleven miles. Grading is to be started immediately.

R. L. Rogers an Old Timer, when it comes to running steam shovels, was in this office today in hopes of landing a job.

Rogers has just shut down a 70-C, which he was running for Mason & Hanger at Waverly, Va., where he said he would make his home at the Central Hotel until he landed another job.

Mr. F. R. Hall, clerk, Cumberland County, Fayetteville, N. C. recently awarded four and one-half miles of sand-clay road work to W. J. Black of Hoffman, N. C.

According to report, about 1,000 acres of manganese land at Crimora, Va., will be developed by the Crimora Manganese Corporation, which was recently incorporated with $2,000,000. capital stock. The company has been mining 150 tons of manganese per month, and intends, so it is said, to increase this output to 200 tons daily by installing additional machinery, for which contracts are said to have been awarded. Its proven ore basin covers about 100 acres, and the steam shovel is being used to take out the ore. It is understood that this action for an enlarged production has been taken because of the increased demand for manganese for the steel industry, which finds the supply greatly decreased because of the war in Europe, from which country has been obtained heretofore a large portion of the manganese used in America.

Charlottesville—W. W. Boxley & Co., Roanoke, Va., were awarded a contract for 7 miles of second track from Charlottesville to Arrowhead for Southern Ry.

Washington

Seattle—A contract has been awarded to Henry & McFee, Seattle, Wash., by Bellingham & Northern Railway Company, for 3-mile extension from Bellingham to Lake Whatcom.

Wisconsin

Beloit—Peter E. Johnson, Beloit, Wis., has sublet from Madden & Connell of Edgerton, Wis., about 18,000 yards of grading on a new 7 mile extension of the Chicago and Lake Superior Railway near Cambridge, Wisconsin. The work has not started as yet because of some difficulties with right of way.

UMI

Arizona

Webster—An announcement is made that the Gunn-Thompson Company will build a railroad from a connection with the Arizona Eastern at Webster, Ariz., northeast to its mines at Superior, about 20 miles.

Arkansas

Wynne—It is reported that bids will be received in about a month for the construction of Drainage District No. 2 in Crittenden county, which has 145 miles of canals, requiring the excavation of about 4,500,000 cubic yards.

Little Rock—Extensive developments are planned by the St. John levee and drainage district of Missouri. The district encloses about 315,000 acres in New Madrid and Mississippi counties. The aim is to hasten the completion of the levee systems now constructed.

For the work heretofore built as well as that which is now under way in this section of the country, the floating dipper dredge is used almost universally for the ditching, and teams with scrapers are used for the levees. For the different classes of work now contemplated and considering all of the special conditions obtaining, it is expected that the following equipment will be used: For the low level ditch a standard floating dipper dredge of about 3½ cu. yds. capacity, or a drag line; for the high level ditch, some form of large-sized dragline excavator (preferably one on each berm); for the standard levee, teams and scrapers, dragline or steam shovel and dump cars, as the case may be; for the special levee, a floating suction dredge with about a 12-in. pump.

In general for the work it is estimated that the prices will fall within the following limits, contractor's profit included:

	Per cu. yd.
Dredge work	7½ cts. to 9 cts.
Dragline work	10 cts. to 15 cts.
Suction dredge	12 cts. to 18 cts.
Team work	16 cts. to 25 cts.
Steam shovel work	25 cts. to 40 cts.

On the suction dredge work the equipment cost will be large per unit because the amount of work is small.

Before the entire scheme is completed the quantities will approximate the following:

	Cu. yds.
Floating dredge work (low level ditch)	970,000
Dragline work (high level ditch)	12,000,000
Suction dredge work	200,000
Levee work (all classes)	6,500,000

The matter is now before the courts. It will probably be several months before the work can be advertised—the Miller Engineering Co. of Little Rock are the engineers.

California

Fresno—The Fresno Canal & Irrigation Company, Fresno, California, has under advisement plans and specifications for the reconstruction of several large canals, construction of several concrete headgates and other extensive improvements in the Fresno Irrigation District. As the work must be completed before February, 1915, it is expected that proposals will be called for immediately and the work rushed through to completion.

Idaho

Blackfoot—Oregon Short Line Railroad has under advisement plans and specifications for the construction of a second track on its main line extending from Pocatello, Idaho, to Blackfoot, Idaho. The work will be under the supervision of Carl Stradley, Chief Engineer, Salt Lake City, Utah.

Illinois

Sycamore—Commissioners have been appointed and the preliminary steps have been taken in the county court for the establishment of a drainage district to drain 2,850 acres in Milan township. It is proposed to construct a ditch 3½ miles long, 16 feet wide and from 5 to 6 feet deep.

Chicago—W. V. Judson, lieutenant colonel, engineers, U. S. Engineering Office, 508 Federal Building, Chicago, will accept sealed proposals until November 13, 1914 for dredging in the Chicago River, Illinois. Plans and specifications will be supplied on application.

Kentucky

Raymond—W. H. Courtnay, chief engineer, The Louisville & Nashville Railway, Louisville, Ky., has under advisement plans and specifications for the construction of a three mile line connecting Raymond and Jenkins, Ky. It is understood that proposals will be called for in the immediate future.

Maryland

Baltimore—Western Maryland R. R. contemplates expenditure of $13,000,000 for betterments, when business conditions warrant such undertakings. Work includes grade reduction on line between Cumberland and Hagerstown.

North Carolina

Kinston—The Norfolk Southern R. R. contemplates extending its subsidiary, the Kinston-Carolina R. R., from Pink Hill into Duplin County, 20 or 35 miles.

Texas

Alpine—The Kansas City, Mexico & Orient Railroad contemplates the construction of a standard-gauge line extending from Girvine to Alpine, Texas. The construction will be under the supervision of R. P. Parker, chief engineer, San Angelo, Texas.

Lubbock—The Altus, Roswell & El Paso R. R. has been organized for the purpose of constructing a railway from Memphis, Tex., to Roswell, N. M., about 291 miles. E. C. Noble, Lubbock, Tex., is president and general manager.

Utah

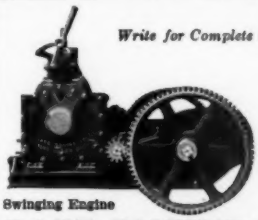
Provo—The United States Reclamation Service, Provo, Utah, will accept sealed proposals until November 15, 1914 for the construction of divisions 1, 2 and 3 of High Line Canal and structures, Strawberry Valley Project, Utah. Complete plans and specifications will be furnished on application to the United States Reclamanation Service, Department of Interior, Washington, D. C.

Virginia

Norfolk—Surveys are now being made by the Norfolk, Yorktown & Washington Ry., to build the line projected last year from a point in Gloucester county, Va., north via Fairfax, about 160 miles. W. H. Edwards, Newport News, Va.; C. T. Hobart and W. W. Terry, of Norfolk, may be addressed.

Foreign

Queretaro, Mexico—Col. Frederico Montes, governor of the State of Queretaro, is taking steps for the construction of several hundred miles of railroad. Surveys are said to be under way for a line from Queretaro to Port Tampico, 600 miles, also for a line from Queretaro to Acambaro.



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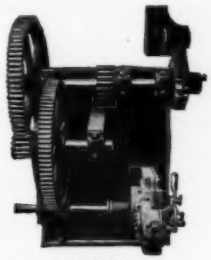

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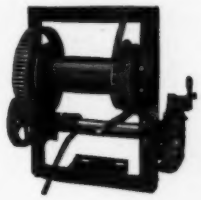

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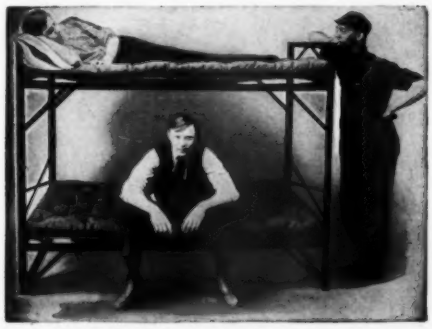

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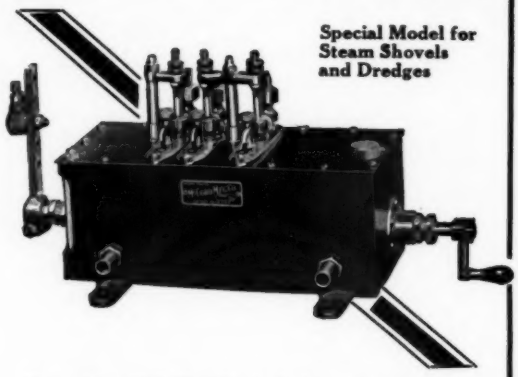
Our 30 day free trial offer will prove our claims. The "McCord" Lubricator (shown in cut) starts, stops and changes speed with the engine. It is equipped with a separate pump for each feed; separate adjustment for each pump. In fact *all* the *good* features of other force feed lubricators are incorporated *plus some special features especially for Steam Shovel and Dredge service.*



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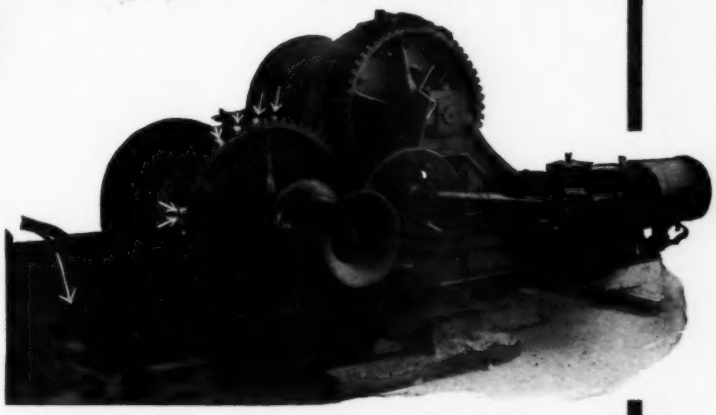

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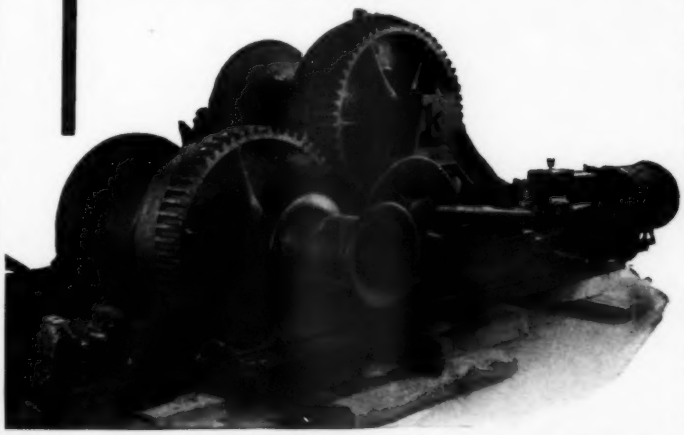

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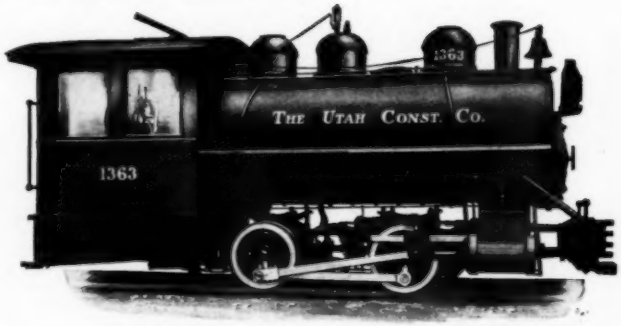

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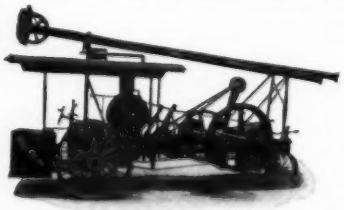

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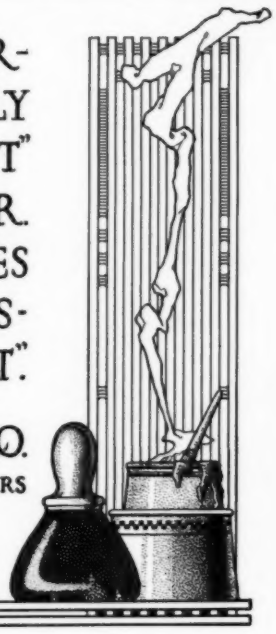

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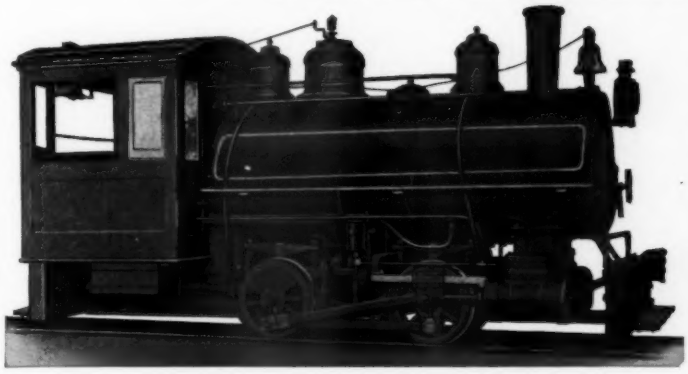

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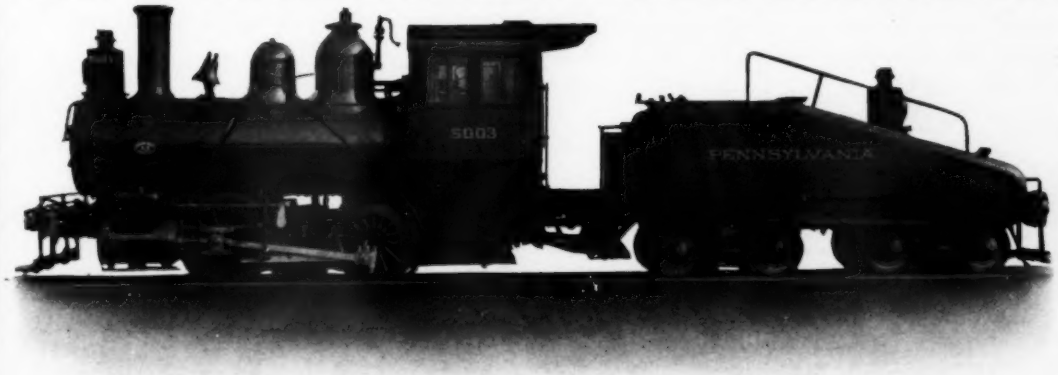

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